

WHAT IS CLAIMED IS:

1. An inline automatic/manual shifter comprising:
  - a shift lever configured and arranged to selectively move in a straight line path to select one of a park position, a neutral position, a reverse position and a drive position;
  - 5 a manual up-shift switch configured and arranged to be actuated by the shift lever while in the drive position to cause an upshift of the automatic transmission;
  - a manual down-shift switch configured and arranged to be actuated by the shift lever while in the drive position to cause a downshift of the automatic transmission;
  - a manual shift selector configured and arranged to select a manual shift mode
  - 10 activating the manual up-shift switch and the manual down-shift switch; and
  - a shift position retaining mechanism including a detent spring fixed to move with the shift lever and a shift position retaining element with a park position notch, a neutral position notch, a reverse position notch and a drive position notch,
  - the detent spring being configured and arranged to selectively engage the notches
  - 15 of the shift position retaining element to selectively retain the shift lever in one of the park position, the neutral position, the reverse position and the drive position,
  - the drive position notch being configured and arranged to form an up-shift switch ramp surface and a down-shift switch ramp surface with a center neutral drive location located between the up-shift and down-shift switch ramp surfaces,
  - 20 the up-shift and down-shift switch ramp surfaces being configured and arranged such that the detent spring applies an urging force on the drive position notch to bias the detent spring to the center neutral drive location,
  - the up-shift and down-shift switch ramp surfaces being further configured and arranged such that the manual up-shift switch is operated when the detent spring is moved
  - 25 along the up-shift switch ramp surface and the manual down-shift switch is operated when the detent spring is moved along the down-shift switch ramp surface.
2. The inline automatic/manual shifter according to claim 1, wherein
  - the shift lever includes a movable detent pin arranged to selectively engage a
  - 30 stationary shift plate to prevent the shift lever from shifting from the drive position to one

of the park position, the neutral position, and the reverse position while the detent pin remains engaged with the shift plate and the shift lever is located in the drive position.

3. The inline automatic/manual shifter according to claim 2, wherein  
5 the detent pin is configured and arranged to selectively actuate the manual up-shift switch and the manual down-shift switch upon movement of the shift lever while the shift lever is located in the drive position.

4. The inline automatic/manual shifter according to claim 3, further  
10 comprising  
an automatic transmission shift plate configured and arranged to be selectively engaged and disengaged by the detent pin such that the shift lever moves with the automatic transmission shift plate when the detent pin is engaged with the automatic transmission shift plate and the shift lever moves independently of the automatic  
15 transmission shift plate when the detent pin is disengaged with the automatic transmission shift plate.

5. The inline automatic/manual shifter according to claim 4, wherein  
20 the automatic transmission shift plate is pivotally mounted about a pivot axis.

6. The inline automatic/manual shifter according to claim 5, wherein  
the shift lever is pivotally mounted about the pivot axis of the shift plate.

7. The inline automatic/manual shifter according to claim 2, further  
25 comprising  
an automatic transmission shift plate configured and arranged to be selectively engaged and disengaged by the detent pin such that the shift lever moves with the automatic transmission shift plate when the detent pin is engaged with the automatic transmission shift plate and the shift lever moves independently of the automatic  
30 transmission shift plate when the detent pin is disengaged with the automatic transmission shift plate.

8. The inline automatic/manual shifter according to claim 2, wherein the shift lever includes an automatic shift selector located on an upper portion of the shift lever with the automatic shift selector being operatively coupled to the detent pin.

5 9. The inline automatic/manual shifter according to claim 1, wherein the manual shift selector is located on an upper portion of the shift lever.

10 10. The inline automatic/manual shifter according to claim 1, wherein the shift lever includes an automatic shift selector being operatively coupled move to a movable detent pin that engages a stationary shift plate to limit movement of the shift lever.

15 11. The inline automatic/manual shifter according to claim 1, wherein the shift lever includes a movably detent pin that is arranged to selectively engage and disengage an automatic transmission shift plate while the shift lever is in the drive position such that the shift lever moves with the automatic transmission shift plate when the detent pin is engaged with the automatic transmission shift plate and the shift lever moves independently of the automatic transmission shift plate when the detent pin is disengaged with the automatic transmission shift plate.

20 12. The inline automatic/manual shifter according to claim 11, wherein the detent pin is configured and arranged to selectively actuate the manual up-shift switch and the manual down-shift switch upon movement of the shift lever while the shift lever is located in the drive position.

25 13. The inline automatic/manual shifter according to claim 12, wherein the automatic transmission shift plate and the shift lever are pivotally mounted about a pivot axis.

14. An inline automatic/manual shifter comprising:  
a shift lever configured and arranged to selectively move in a straight line path to select one of a park position, a neutral position, a reverse position and a drive position;  
a manual up-shift switch configured and arranged to be actuated by the shift lever  
5 while in the drive position to cause an upshift of the automatic transmission;  
a manual down-shift switch configured and arranged to be actuated by the shift lever while in the drive position to cause a downshift of the automatic transmission;  
a manual shift selector configured and arranged to select a manual shift mode activating the manual up-shift switch and manual down-shift switch; and  
10 a shift position retaining mechanism configured and arranged to selectively retain the shift lever in one of the park position, the neutral position, the reverse position and the drive position;  
a shift release device coupled to the shift lever to selectively lock the shift lever in the drive position and release the shift lever for movement along the straight line path, the  
15 shift release device including a detent pin that selectively engages a shift gate; and  
an automatic transmission shift plate configured and arranged to be selectively engaged and disengaged by the detent pin such that the shift lever moves with the automatic transmission shift plate when the detent pin is engaged with the automatic transmission shift plate and the shift lever moves independently of the automatic  
20 transmission shift plate when the detent pin is disengaged with the automatic transmission shift plate.

15. The inline automatic/manual shifter according to claim 14, wherein the automatic transmission shift plate and the shift lever are pivotally mounted  
25 about a pivot axis.

16. The inline automatic/manual shifter according to claim 14, wherein the detent pin is configured and arranged to selectively actuate the manual up-shift switch and the manual down-shift switch upon movement of the shift lever while the shift  
30 lever is located in the drive position.

17. The inline automatic/manual shifter according to claim 14, wherein the shift lever includes an automatic shift selector located on an upper portion of the shift lever with the automatic shift selector being operatively coupled move to the detent pin.

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18. The inline automatic/manual shifter according to claim 14, wherein the manual shift selector is located on an upper portion of the shift lever.

19. An inline automatic/manual shifter comprising:

10 hand operating means for selectively moving in a straight line path to select one of a park position, a neutral position, a reverse position and a drive position of an automatic transmission;

manual shifting means for manually shifting gears of the automatic transmission in response to movement of the hand operating means in the straight line path while the hand  
15 operating means is in the drive position; and

shift position retaining means for selectively retaining the hand operating means in one of the park position, the neutral position, the reverse position and the drive position while allowing a manual shift movement of the hand operating means along the straight line path from a central neutral location of the drive position to a manual shift location of  
20 drive position while the hand operating means is in the drive position,

the shift position retaining means being configured to apply an urging force to bias the hand operating means to the center neutral drive location of the drive position when the hand operating means is moved to the manual shift location of the drive position. on the drive position notch to bias the detent spring to the center neutral drive location

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20. An inline automatic/manual shifter comprising:

hand operating means for selectively moving in a straight line path to select one of a park position, a neutral position, a reverse position and a drive position of an automatic transmission;

30 manual shifting means for manually shifting gears of the automatic transmission in response to movement of the hand operating means in the straight line path while the hand operating means is in the drive position; and

manual shift selecting means for selecting a manual shift mode that activates the manual shifting means; and

5 shift position retaining means for selectively retaining the hand operating means in one of the park position, the neutral position, the reverse position and the drive position while allowing a manual shift movement of the hand operating means along the straight line path from a central neutral location of the drive position to a manual shift location of drive position while the hand operating means is in the drive position,

10 manually operated shift release means for selectively locking the shift lever to in the drive position and release the shift lever for movement along the straight line path, the shift release means including detent means for selectively engaging a shift gate; and

automatic transmission shift means for selecting an automatic transmission position in response to movement of the hand operating means in the straight line path,

15 the automatic transmission shift means being configured and arranged to be selectively coupled to the hand operating means by the detent means of the manually operated shift release means such that the hand operating means moves with the automatic transmission shift means when the shift release means is engaged with the automatic transmission shift means and the hand operating means moves independently of the automatic transmission shift means when the shift release means is disengaged with the automatic transmission shift means.

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